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October 22, 2012

Mr. Ron Skinnarland
Washington Department of Ecology
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Dear Mr. Skinnarland,

Hanford Challenge hereby submits comments on the Draft Hanford Facility Dangerous Waste Permit (the Permit). The Department of Ecology (Ecology) staff has been exceptional to work with to prepare for the release of the revised Permit over the past few years. Hanford Challenge values the effort made to incorporate our suggestions regarding the public involvement process and the work done in advance to prepare the Hanford Advisory Board for the release of the Permit.

It has been a challenging task to review this permit, and we acknowledge the significant efforts made to make the permit as well as the comment process more accessible. We appreciate your consideration of our comments on the Permit and look forward to continuing to work with Ecology on safe and effective cleanup at Hanford.

General Permit Comments

1. The Washington Administrative Code (WAC) provides broad authority to the Director of the Department of Ecology in setting facility-specific Permit conditions. WAC 173-303-815 (2)(b)(ii) states that "Each permit issued under this chapter must contain terms and conditions as the director determines necessary to protect human health and the environment." Many of our recommendations for Permit conditions are based upon this authority and what we consider as necessary to protect human health and the environment.

2. Hanford Challenge is concerned with the lack of information submitted with the permit application. The Permit cites many external documents and processes as Permit conditions. Documents linked to the Permit may undergo significant change – impacting conditions within the Permit – without ample opportunity for public review and comment. We were also troubled by the limited release of the Waste Treatment Plant (WTP) portion of the Permit, and emphasize that more information should have been available to the public. Information required to write a Permit should have been submitted with the Permit Application in 2004. *PPC 9524.1984(01) COMPLIANCE SCHEDULES IN RCRA PERMITS OCT 5 1984*, an EPA memorandum on compliance schedules, states a compliance schedule cannot be used to allow a facility additional time

to provide Part B application information after the permit is issued. The draft permit does not comply with this EPA directive.

Hanford Challenge Recommends that Ecology:

- Spell out Specific Permit conditions within the Permit – rather than referenced as a part of a separate plan or agreement or supporting regulation.

- Make all portions of the Permit (drawings included) should be publicly accessible electronically, unless a specific legal exemption applies (such as proprietary information).

- Include permanent links to all citations to external documents either as appendices to the Permit or on Washington State servers.

- Afford external processes and documents offer the same degree of public review and comment as required for RCRA permit review. For example, if a change were made in the RCRA permit that would require public review and comment, then the corresponding document/process needs to also require at least public review and comment.

3. Hanford Challenge is concerned by repeated references in the Permit where Ecology yields authority to either the U.S. Environmental Protection Agency (EPA) via CERCLA actions, or to the regulated entities at Hanford- the U.S. Department of Energy (DOE) and its contractors. The Permit's use of suggestive language such as, 'Ecology may accept,' does not meet permit requirements for closure details. The unit descriptions imply closure actions to be done under a CERCLA work plan authority rather than the RCRA permit. The prospective agreement of acceptance of CERCLA work meeting RCRA closure requirements is troubling at best when CERCLA documents do not yet exist. The use of the Corrective Action/Record of Decision (CAD/ROD) approach to integrate Treatment Storage and Disposal Facility (TSD) closure with CERCLA for the Central Plateau TSD units and delay of development of closure plan/contingency plans/post-closure plans until after remedy selections does not ensure compliance with the Dangerous Waste Regulations [WAC 173-303-610].

Hanford Challenge Recommends that Ecology:

- More clearly and explicitly state and exercise its Resource Conservation and Recovery Act (RCRA) authority in the Permit.

- More prescriptive language in the Permit when referencing Permit conditions and the permit should contain enforceable words such as "shall" and "must."

4. The Permit Fact Sheets are incomplete and do not meet WAC 173-303-840 for decision making. The Hanford permit is a subject of wide-spread public interest and one that raises major issues. Its fact sheet is significantly important because of this and requires a very factual, legal description of the permit conditions and a detail basis for the draft

permit conditions including supporting references. Fact Sheets are required to give reasons why any variances or alternatives to required standards do or do not appear justified. The fact sheets in this draft permit do not provide detail, facts and basis for why a permit condition was decided. The fact sheet language only rephrases each permit condition into a statement sentence. There is no explanation or reason for a permit condition or references to procedures, etc., in the administrative record. These fact sheets are nothing more than another public notice description of the unit and provide very little to publically comment or understanding of the unit conditions.

Hanford Challenge Recommends that Ecology:

- Provide better, well written fact sheets for a complex permit. Provide training and guidance to staff and permit writers on fact sheets and their purpose. Follow the requirements of WAC 173-303-840 for decision making with permit conditions.

5. **The use of compliance schedules are found in the following units:** WTP, 1301-N LWDF, 1325-N LWDF, 1324-N&NA, 183-H SEB, 1706-KE, 216-S-10P&D, 216-A29 Ditch, 216-A37-1 Crib, 216_A-36B Crib, 216-B-63 trench, 216-B-3 Main Pond, 207-A SRB, 241-CX Tank, Hexone tanks, LLBG Trench 94, LLBG Trench 31/34, NRWLD, CWC, WRAP, T-Plant. Ecology issued an incomplete final Hanford permit in 1994. Ecology again proposes to issue an incomplete final permit in 2012. None of the above units had final status in 1994 and now after 18 years the Nuclear Waste Program still cannot issue a final Hanford permit to include the 21 units listed above. WTP is the only one of these units currently under construction and may justify a compliance schedule. The other 20 units do not justify a compliance schedule because the items missing such as required ground water monitoring plans, closure plans, sampling and analyses plans, waste analysis plans, engineering designs, post closure plans and Part A information are final facility permit requirements for dangerous waste facilities under WAC 173-303-806.

   USDOE is required to submit a **complete** permit application for a final facility permit. The application is a Part B and must be signed and certified to Ecology. This application must include a Part A, waste analysis plan with sampling analysis plan, closure plan, post closure plan (if subject to post closure) and groundwater monitoring plan for the appropriate unit. Under WAC 173-303-806 (8) Ecology will not issue a final facility permit **before receiving a complete application**. Ecology determines when the application is complete and for writing a final permit.

   WAC 173-303-840 (a) states that the department will not begin the processing of a permit until the applicant has fully complied with the application requirements for the permit. USDOE submitted a dangerous waste Part B permit application for all of Hanford to Ecology in 2004. Ecology had to determine the application was complete to draft a final permit for public comment. A complete application would require the pieces mentioned above. Why are there compliance schedules for 21 units after a permit application and 18 years to write a new permit? This "Rev 9" draft permit appears to be incomplete, illegal, and misleading to the public. The public deserves a permit to make us safer and USDOE accountable.

Hanford Challenge Recommends that Ecology:

- Review all of WAC 173-303-840 and ensure the permit is in compliance.
- Provide the following answers and the documentation that supports it:
  - Was a Part B permit application submitted to Ecology from USDOE? Was the application complete?
  - Did Ecology determine that the Part B application was complete? When was the determination made?
  - Did Ecology send a letter to USDOE stating that their application was complete? When was the letter sent? Provide a copy of the letter.
  - If Ecology did document that the USDOE permit application was complete, explain why the draft permit is requiring permit application information **after issuance of the permit authorizing these units to conduct dangerous waste activities on insufficient information.**
  - Since EPA has authorized the RCRA program to Washington state and over sees Ecology, provide documentation that EPA approved of this application process and permit conditions or have EPA respond to parts of this comment.
  - Withdraw all 20 deficient units of the draft permit and rewrite them so the public can have a sufficient and compliant permit to review. Or, provide the legal basis for proposing an incomplete permit as an authorized state program.

6. **The use of Omnibus Authority or WAC 173-303-815 (2) in permit conditions:** There are several permit conditions throughout this permit that establish requirements outside WAC 173-303. If a permit includes permit conditions necessary to achieve compliance and protect human health and environment the permit must include the basis for these permit conditions. The basis and justification for omnibus authority permit conditions in the permit cannot be found in any fact sheet information.

   Hanford Challenge Recommends that Ecology provide the permit fact sheet basis for these permit conditions or delete them. Every permit condition requires a justification for the decision in the fact sheet.

7. **Worker Health and Safety Under RCRA:** Congress intended for RCRA to be used to product human health as well as the environment. As such, courts have applied RCRA to in the industrial health context. Hundreds of employees work in and around the Hanford tank farms on a daily basis and around the clock. Pipefitters, construction workers, electricians, millwrights, nuclear chemical operators, health physics technicians, and others comprise the bulk of workers who routinely encounter potentially deadly vapors

from the more than 1200 chemicals that can and do escape the tanks. Cancer, to say nothing of a number of illnesses, injuries and adverse health effects already documented at Hanford, does constitute a serious harm "substantially" affecting workers' well-being. Furthermore, DOE-sanctioned cancer risk assessments, along with evidence of widespread health effects of vapor exposure, should support a finding that exposure "substantially" endangers workers, by subjecting them to a strong likelihood that their health will suffer. Handling the waste at the Tank Farms without the proper equipment puts workers at risk of inhaling the hazardous chemical gases contained in the tanks or even being splashed with the toxic and radioactive liquid waste. The threatened harm is immediate and can lead to serious adverse health effects.

In RCRA, Congress provided citizens with the right to protect their heath and the environment by bringing suit for injunctive relief from "imminent and substantial endangerment." 42 U.S.C. § 6972(a)(1)(B) (Westlaw 2008). Specifically, the statute states:

> *any person* may commence a civil action on his own behalf…against *any person*, including the United States and any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution, and including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or *who is contributing to* the past or present *handling*, storage, treatment, transportation, or disposal *of* any solid or *hazardous waste which may present an imminent and substantial endangerment to health* or the environment….

The Proposed Permit is silent on worker health and safety issues such as the chemical vapor exposure issues, which should be corrected.

Hanford Challenge Recommends that Ecology incorporate in the permit and acknowledge its authority to use the imminent and substantial endangerment provisions of RCRA to protect the workers from unsafe working conditions. Ecology should exercise its RCRA authority to require characterization and an adequate level of protection for personnel in uncharacterized (and uncharacterizable) work environments. Though mainly used for environmental protection, courts have also used RCRA in industrial health contexts and have recognized Congress's expansive objectives in enacting the legislation.[1] Congress provided opportunities to bring suit against those who present an imminent and substantial endangerment to health or the environment while contributing to the handling of solid or hazardous waste. One section of the law allows the EPA or equivalent state agency to "bring suit … against any person … who has contributed or who is contributing to such handling, storage, treatment,

[1] Courts have upheld convictions under this provision of an employer who knowingly placed employees at risk for solvent poisoning and cancer and an employer who knowingly exposed employees to cyanide gas, among others. *United States v. Protex Industries, Inc.*, 874 F.2d 740 (10th Cir. 1989); *United States v. Elias*, 269 F.3d 1003 (9th Cir. 2001). The First Circuit recognized Congress's intention to include protection of worker safety in RCRA: "[U]nlike the Clean Water Act, RCRA exhibits explicit concern for industrial health." United States v. Borowski, 977 F.2d 27, 31 (1st Cir. 1992).

transportation or disposal to restrain such person from such handling, storage, treatment, transportation, or disposal, to order such person to take such other action as may be necessary, or both." 42 U.S.C. § 6973(a). Congress intended and courts have held that RCRA to protect human health as well as the environment. Because Hanford Tank Farm workers have no other viable legal options, the Department of Ecology, should ensure safe working conditions and be prepared to use the "imminent and substantial endangerment" provisions of RCRA to ensure those safe conditions exist.

8. **Off-Site Waste -** There has been a considerable amount of concern expressed in recent years throughout the region over proposals to bring additional waste to Hanford for disposal. Some of the proposals would bring potentially significant volumes of highly radioactive waste to Hanford. Like others throughout the region, Hanford Challenge opposes these proposals. Safely managing the wastes that are already on site is a significant challenge in and of itself and DOE predicts long-term impacts to groundwater due to the existing waste volumes already disposed at Hanford. We recognize that there are some limited waste streams, including Navy reactor compartments, which are currently allowed to come to Hanford. We do not oppose these limited waste streams based on their limited impacts.

   Hanford Challenge Recommends that Ecology:

   - Exercise its authority – either through the Permit or through other means – to ensure that off-site wastes do not come to Hanford for disposal, except as noted.

   - Specify the allowed waste in each unit to preserve the public's ability to comment and intervene if DOE requests to add other wastes.

Part I and II Permit Conditions Comments:

1. Modified/Partial closure of an individual unit is not authorized under WAC 173-303 regulations and therefore should not be included as an option in permit closure (*see* 1325-N).

2. All unit-specific groundwater monitoring plans should be consistent with Ecology Publication # 04-03-030, Guidelines for Preparing Quality Assurance Plans for Environmental Studies. This is not a required condition in most permits.

3. Permit unit specific Contaminant of Concern lists do not encompass the full range of contaminants. Ecology should include in each unit-specific Permit the full list of COCs as noted or identified in unit- associated draft RI/FS documents previously submitted to Ecology (e.g., DOE/RL-2004-17, Draft A, Pg. ES-5, Table ES-1 & pg 6-7).

4. Permit conditions do not require use of a methods-based approach in the unit-specific Sampling and Analysis Plans. Nor is use of non-filtered sampling in the Sampling and Analysis Plans required. Ecology should require these per the WAC 173-303 regulations.

5. Permit conditions do not, but should require repairs and replacement of wells per WAC 173-160.

6. Permit conditions do not, but should require coordination and incorporation of RCRA inspection requirements for the unit-specific permits with those for the associated CERCLA groundwater operable unit's. Inspection should at a minimum, be on a semi-annual basis.

7. Permit conditions do not, but should ensure that all unit-specific Closure Schedules are compliant with the Dangerous Waste WAC 173-303-610 requirements or 173-303-815(3)(b).

8. Statements are made in permits to the effect that the Permittee may make the determination that the unit can't meet clean closure standards. These statements should be deleted and text rewritten to reflect that Ecology makes permitting decisions in accordance with WAC 173-303.

9. Permits do not identify list of other applicable laws or required permits nor are there conditions which reflect how compliance of these will be achieved.

10. In **Section I.A.2** the permit states, "Compliance with this Permit constitutes compliance with WAC 173-303-140, WAC 173-303-180, WAC 173-303-280 through 395, WAC 173-303-600 through -695, WAC 173-303-810, and WAC 173-303-830, except for permit modifications and those requirements that become effective by statute or are adopted under 40 CFR Part 268 restricting placement of dangerous waste in or on the land." Additionally, **8) Effect of a Permit** says "compliance with a final facility permit during its term constitutes compliance for the purpose of enforcement with Chapter 173-303…" This current permit condition text is incorrect and deviates from standard language used in other WA state permits.

Hanford Challenge Recommends that Ecology:

- Explain why this permit language deviates from standard language used in other WA state permits.

- Change the text to agree with the regulation and its intent: Pursuant to WAC 173-303-810(8), compliance with this permit during its term constitutes compliance for the purpose of enforcement with Chapter 173-303 WAC for waste management activities covered under this permit except as provided for in WAC 173-303-810(8)(a)(i) through (iv). Compliance with this permit does not constitute a defense to any order issued or any action brought under other state or federal laws or regulations.

11. Standard and General Permit Conditions are required by WAC 173-303-810 and should not be in conflict with another permit condition. Section **I.A.6** reads, "In the event that a unit specific permit condition in Parts III through VI conflicts with the Part I Standard Conditions and/or Part II General Facility Conditions of the Permit, the unit specific

permit condition will prevail." Parts 1 and 2 permit conditions are enforceable in all WA state permits. Ecology should be resolving the unit permit condition, not the other way around. Parts 1 and 2 should prevail.

Hanford Challenge Recommends that Ecology:

- Provide the regulatory basis for 1.A.6.
- Review the WAC 173-303-810 requirements and change the permit condition text to follow the WAC requirements and establish compliance with the permit language.

12. Under section **I.E.3 Duty to Mitigate**, the Permit Condition reads: "In the event of noncompliance with the Permit, the Permittees will take all reasonable steps to minimize releases to the environment, and will carry out such measures as are reasonable to minimize or correct adverse impacts on human health and the environment." [WAC 173-303-810(5)]

WAC 173-303-810 (5) actually says: "The permittee **must take all steps required** by the department to minimize or **correct any adverse impact on the environment resulting from noncompliance with the permit**."

Hanford Challenge Recommends that Ecology:

- Ensure that Hanford follow the regulations as written like other dangerous waste facilities in Washington.
- Explain why these general permit conditions that are less stringent than the WAC.
- Delete the current draft language and provide the correct WAC 173-303-810(5) language for Duty to Mitigate in I.E.3 in this permit.

13. Section I.E.4.b permit condition reads "In the absence of manufacturer's instructions or applicable regulatory or code requirements, the Permittees will apply generally accepted operating or engineering practices as necessary to achieve proper operation, maintenance, and protection of human health." [WAC 173-303-810(6)] This language is not in WAC. It appears that Ecology is rewriting general permit conditions and in a way that is less stringent than the regulations.

Hanford Challenge Recommends that Ecology:

- Show where in WAC 173-303-810 (6) this language appears and where the regulatory basis to include this language in a permit.
- Demonstrate how Ecology enforce this permit condition because the current condition is not enforceable as written

- Describe where in the Hanford Part B permit application and the permit fact sheet is the justification for the reasons the required standard is changed.

- Either provide answers/justifications to the questions above and/or remove this permit condition from the permit.

14. In **I.F.2.a Monitoring Records** states, "The Permittees will comply with the requirements of WAC 173-303-810(11)(c), incorporated by reference," and **I.F.2.b** states, "The Permittees will comply with the requirements of WAC 173-303-810(11)(d), incorporated by reference." This does not provide where the ground water monitoring records requirements are. Is one to look to Part 1 and 2 or to unit specific requirement?

Further, the Permit does not include Ecology approved and Dangerous Waste WAC 173-303 compliant RCRA Groundwater Monitoring Plans as attachments to unit specific Permits within their Closure Plan Addenda. Groundwater monitoring plans are not consistent with the DW regulation requirements. Key elements that comprise groundwater protection standards (WAC 173-303-645(3)) are missing.

Hanford Challenge Recommends that Ecology:

- Clarify where groundwater monitoring records requirements are in this permit. Add them here if appropriate.

- Clearly identify the groundwater protection standards that satisfy WAC 173-303-645(4), (5), (6), (7), (8), and (9).

- Clearly identify dangerous constituents, concentration limits, point of compliance, compliance period, and general groundwater monitoring requirements.

15. Section **I. F.6 Emergency Reporting and I.F.6.a** states, "Permittees will comply with the requirements of WAC 173-303-360(2)(k), incorporated by reference, with documentation reflected in both the Hanford Facility Operating Record, General File and unit-specific file(s) as appropriate." However, WAC 173-303-360(2)(k) is clear that reporting will go in the operating record and defines what elements go in the report. Why is the permit condition confusing the requirement by adding "documentation reflected?" It appears that Ecology is rewriting standard permit conditions that are less stringent or conflict with the actual requirement making it harder to enforce the permit condition.

Hanford Challenge Recommends that Ecology:

- Define "documentation" as it applies to this permit condition. Define "general file" as it applies to this requirement. Define and clarify what "as appropriate" means in this permit condition.

- Remove the ambiguous wording in the permit condition and use WAC 173-303-360(2)(k) as it is intended. If Ecology does not change the language, provide the justification and regulatory basis to keep it as is.

16. Section, **F.7 Other Non-Compliance, I.F.7.a** states, "Permittees will report to Ecology all instances of noncompliance with this Permit not otherwise reported according to Permit Conditions I.F.4, I.F.5, or I.F.6. These reports will include applicable information required by WAC 173-303-810(14)(f), incorporated by reference. This report will be submitted at the time the Annual Dangerous Waste Report is submitted. An instance of noncompliance under this requirement **may instead be documented** by inclusion in the Hanford Facility Operating Record maintained pursuant to Permit Condition II.I. [WAC 173-303-810(14)(g)]"

Permit condition F.7 and I.F.7a **does not** meet the requirements of the WAC regulations in WAC 173-303-810(14)(f) and (g). Section14(f) requires immediate reporting for any non-compliance verbally and within 5-days, and 14(g) requires reports of other non-compliance at the time monitoring reports are submitted **not** once a year. Where is Ecology's justification for re-writing a permit condition less stringent than the regulation? How will you enforce "may instead" language according to the regulation? Further, what instance of noncompliance may instead be documented in an operating record under WAC 173-303-810(14)?

Hanford Challenge Recommends that Ecology:

- Ecology should provide the permit fact sheet justification and/or Part B permit application material that allows Ecology to authorize this change in a standard permit condition requirement.

- Justify the enforceability of this permit condition. Or re-write the permit condition so that it meets the regulation and is enforceable.

17. Regarding the transfer of permits, section **I.G.1** states, "This Permit may be transferred to a new owner/operator only in accordance with the requirements of WAC 173-303-830(2), incorporated by reference, to identify the new Permittees and incorporate such other requirements as may be necessary, except that the financial assurance requirements in WAC 173-303-830(2)(b) do not apply. A unit-specific portion may be transferred to a new operator as a Class 1 1 modification with prior approval of the Department's director. [WAC 173-303-810(14)(c)]"

While Ecology may believe that USDOE will always be the owner/operator of this permit and is exempt from financial requirements under IIF, WAC 173-303-830(2)(b) does not assume this and is not written as such as is this permit condition. This does not consider the possibility that there could be a new owner that is not federal. Will they be allowed the duration of this permit with no requirement for financial assurance? This permit condition is poorly written and does not meet the regulation. It offers no financial assurance that the operator will hold with this permit.

Hanford Challenge Recommends that Ecology rewrite the permit condition to make it enforceable under any circumstance for transfer of this permit.

18. The permit states, "Except as required pursuant to Permit Condition II.E, all written reports, notifications or other submissions, which are required by this Permit to be sent, or given to the Director of Ecology, **should** be sent certified mail, overnight express mail, or hand delivered…" This is a requirement so word is "must" not "should".

Hanford Challenge Recommends that Ecology change "should" to "must."

19. Standard Permit Conditions state that "all applications, reports, or information submitted to Ecology that require certification **(refer to Permit Attachment 6**) will be signed and certified in accordance with the requirements of WAC 173-303-810(12) and (13), incorporated by reference. Why is there an Attachment 6 for certification, and how is it enforceable? What is the regulatory basis for Attachment 6? WAC 173-303-810(12) and (13) is the clear signatory authority on certification of all applications, reports, or information submitted to Ecology. Why is Ecology writing a permit condition that is less stringent than the requirements? Why is an ambiguous Attachment 6 used or needed?

Hanford Challenge Recommends that Ecology remove Attachment 6 from the permit and follow the regulations. Or provide the permit fact sheet justification that explains the deviation from the WAC for the use of Permit Attachment 6 and its incorporation into this permit.

20. Section **II.B and II.B.1** declares, "Permittees will design, construct, maintain, and operate the Facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of dangerous waste or dangerous waste constituents to air, soil, or surface or groundwater water which could threaten the public health or the environment **through the preparedness and prevention measures given in WAC 173-303-340.** (WAC 173-303-340)."

WAC 173-303-340 does not say this. The last sentence says "This section describes preparations and preventive measures which help avoid or mitigate such situations." Why is there a deviation in the text when WAC 173-303-340 is cited?

Hanford Challenge Recommends that Ecology provide the correct WAC text to the permit condition for better enforceability.

21. Section **II.B2** states, "the Permittees will equip the Facility with the equipment specified in Permit Attachment 4, Hanford Emergency Management Plan (DOE/RL-94-02), and the corresponding unit-specific preparedness and prevention provisions in Parts III, V, and VI. The permittees will test and maintain this equipment as necessary to assure proper operation in the event of emergency. (WAC 173-303-340(1))

This permit condition is unclear as written and appears to talk about two different things. The condition is poorly written to provide direction on whether the permittee will provide the required equipment specified in Attachment 4 or somewhere in the unit specific part.

Hanford Challenge Recommends that Ecology rewrite the permit condition to clearly say what the requirements for equipment are with the permittee.

22. Section II.C.2 Personnel Training, states "Documentation of information required by WAC 173-303-330(2)(a), (b), and (c), incorporated by reference, and other personnel training record requirements in Permit Condition II.C.5 will collectively be the written training plan. The Permittees will place this documentation into the Hanford Facility Operating Record. WAC 173-303-330(2)"

Again, this is less stringent than WAC 173-303-330(2), which specifically requires that the owner or operator must develop a written training plan which must include specific records and documents. The training plan must be part of the permit to be enforceable. It cannot be incorporated by reference. **II.C 1** references Attachment 5 and other permit sections as part of the training plan. **II.C.2** does not. A training plan or training information must be part of the Part B permit application and meet WAC 173-303-330. The permit conditions as written are not complete or completely enforceable.

Hanford Challenge Recommends that Ecology:

- Review all permit conditions in II.C Personnel Training with the WAC 173-303-330 and revise accordingly.

- Or provide the permit fact sheet and Part B application material explaining Ecology's justification for being less stringent than the regulation for personnel training for the Hanford facility.

23. Section II.C.3, states, "Changes to Permit Attachment 5, Hanford Facility Personnel Training Program and the training requirements identified in Parts III, V, and VI, must be made according to Permit Condition I.C.3 for those elements required by WAC 173-303-330(2)(b)."

Why does Ecology only require WAC 173-303-330(2)(b) for permit modification and no other areas of WAC 173-303-330? How can Ecology be certain other permit modifications will not be required?

Hanford Challenge Recommends that Ecology:

- Explain Ecology's permit fact sheet basis for this permit condition and provide the explanation.

- Revise the permit condition to meet the regulations to provide enforceability in the permit.

24. Section II.D Waste Analysis General comment for conditions II.D.2.a, through II.D.3.d are conditions that are for requirements in permit Waste Analysis Permit conditions (WAPs) and Site Analysis Permit conditions (SAPs) which Ecology would be required to review and approve **before** requirements of these permit conditions. WAPs

and SAPs are required parts of the Part B permit applications, not requirements after the permit is issued.

Why aren't these the requirements of the review process of a permit application? How does Ecology write a permit WAP or SAP, justify it as complete and then require these permit conditions? If Ecology requires permit WAPs and SAPs after the permit is issued, then Ecology is not following the WAC regulations.

Hanford Challenge Recommends that Ecology:

- Provide the permit fact sheet and Part B application material that Ecology used to justify these waste analyses permit conditions.
- Explain why Ecology would issue a permit first and verify a complete required WAP or SAP after issuance.
- Delete these permit conditions because they appear to have no purpose as permit conditions.

25. **Section II.H Financial Assurance** states, "the provisions of WAC 173-303-620 are not applicable to USDOE as the owner and operator of the Hanford Facility. The obligations under WAC 173-303-620(1)(c), (3) and (5), to provide cost estimates for facility closure and post closure monitoring and maintenance will be deemed satisfied upon USDOE's compliance with the HFFACO requirement (as currently contained in the M-36 Milestone series) to produce an annual scope, schedule, and cost report. (WAC 173-303-620)"

    This permit condition is first saying that WAC 173-303-620 does not apply to USDOE but then says WAC 173-303-620 does apply to USDOE and HFFACO satisfies WAC173-303-620. How does Ecology enforce this condition? This condition is a poorly written.

    Hanford Challenge Recommends that Ecology:

    - Review WAC 173-303-620 and decide if it applies or does not apply and write a clear enforceable permit condition.
    - Otherwise provide the permit fact sheet justification for this condition.

26. **Section II.1.1 Recordkeeping** states, the "Permittees will comply with the applicable requirements of WAC 173-303-380(1)(d), (e), (f), (h), and -380(3), incorporated by reference, in addition to unit-specific recordkeeping and reporting requirements specified in Parts III, V, and VI pursuant to WAC 173-303-380."

    This permit condition is incomplete in the requirements a facility must keep and have in the written operating record. WAC 173-303-380 (1) requires (a) through (q) not just (d), (e), (f), and (h) as well as -380(2). Why is permit Section IV, corrective action, not

included in this permit condition and have no requirements for record keeping? Again, this permit condition is less stringent than the regulation for -380 requirements.

Hanford Challenge Recommends that Ecology rewrite the permit condition to be consistent and enforceable with the WAC requirements. If not, provide permit fact sheet justification that authorizes Ecology to be less stringent than WAC 173-303-380 and not require record keeping for corrective action permit units.

27. In general, Performance Standards are not sufficiently included in the permit as required by WAC 173-303-283.

Hanford Challenge Recommends that Ecology revise Part II conditions and unit-specific permit condition(s) to include the following: Closure of a RCRA TSD facility is described in these Dangerous Waste Regulations under WAC 173-303-610. WAC 173-303-610(2)(b)(i) requires for soils, groundwater, surface water, and air, the numeric cleanup levels calculated using residential exposure assumptions according to the Model Toxics Control Act Regulations (MTCA), chapter 173-340 WAC, as now or hereafter amended. Primarily, these will be numeric cleanup levels calculated according to MTCA Method B, although MTCA Method A may be used as appropriate (industrial use land). However, use of Methods A and C to meet cleanup standards is in violation of previous commitments by DOE to unrestricted residential use along the River Corridor. Additionally the Hanford site does not meet the criteria for application of Method A; it has too complex waste streams to qualify.

28. The Permit and Units lack conditions identifying required clean closure of or excavation of near-surface soil and remove any associated pipelines or structures (ancillary equipment) per WAC 173-303-283 performance standard requirements.

Hanford Challenge Recommends that Ecology:

- Revise Part II Conditions to comply with WAC 173-303-283.
- Utilize the Closure Plans submitted in the. Ecology should utilize closure plans in Part B applications (2004) and write appropriate Closure Permit conditions to rectify any non-compliance with unit specific closure requirements under WAC 173-303.
- Include these Closure Plans and/or Permit Conditions within the Permit(s) to ensure compliance with WAC 173-303-610.
- Ensure closure plans are consistent with unit-specific Dangerous Waste Regulations (e.g., WAC 173-303-650 Surface Impoundment regulations) as well as the rest of WAC 173-303.

PART III – Operating Units

General Comments and Recommendations for Operating Units:

1. All Addenda identified as "reserved" must include the WAC 173-303 required information in order to be in compliance with the regulations and be included in their respective unit permit (e.g., Sampling and Analysis Plans).

2. All Addenda included in the permit should include the unit specific information not merely reference a document (e.g., Training Plans are located in the unit-specific file rather than the permit, possibly confusing to the permittee. This is definitely confusing to the public).

3. Modified/Partial closure of an individual unit is not authorized under WAC 173-303 regulations and is included as an option in permit closure (*see* 1325-N).

4. All unit-specific groundwater monitoring plans should be consistent with Ecology Publication # 04-03-030, Guidelines for Preparing Quality Assurance Plans for Environmental Studies. This is not a required condition in most permits.

5. Permit unit specific Contaminant of Concern lists do not encompass the full range of contaminants. Ecology should include in each unit-specific Permit the full list of COCs as noted or identified in unit- associated draft RI/FS documents previously submitted to Ecology (e.g., DOE/RL-2004-17, Draft A, Pg. ES-5, Table ES-1 & pg 6-7).

6. Permit conditions do not require use of a methods-based approach in the unit-specific Sampling and Analysis Plans. Nor is use of non-filtered sampling in the Sampling and Analysis Plans required. Ecology should require these per the WAC 173-303 regulations.

7. Permit conditions do not require repairs and replacement of wells per WAC 173-160.

8. Permit conditions do not require coordination and incorporation of RCRA inspection requirements for the unit-specific permits with those for the associated CERCLA groundwater operable units. Inspection should at a minimum, be on a semi-annual basis.

9. Permit conditions do not ensure that all unit-specific Closure Schedules are compliant with the Dangerous Waste WAC 173-303-610 requirements or 173-303-815(3)(b).

10. Permit does not identify list of other applicable laws or required permits nor are there conditions which reflect how compliance of these will be achieved.

11. Ecology should evaluate and confirm that all information on Part A forms is consistent with Washington State Dangerous Waste Permit Application; Part A Form and Instruction publication ECY 303-31 (6-2003) requirements as well as information presented in the SEPA checklists submitted with the Part B Permit application, the unit(s) specific draft Permit Conditions, and the draft factsheet(s) (e.g., the LLBG Part A form

& the permit indicates in-trench treatment or placement of liquids within landfill. This is not allowed by the Landfill regulations).

Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facilities Comments and Recommendations:

1. Identify in the Permit conditions the criteria for receiving new waste streams at ETF and whether or not the process includes a public participation process.

2. Include a Permit condition to require hazard identification and hazard mitigation in the Permit.

3. Include a Permit condition requiring the waste acceptance criteria to include identification of abnormal feed streams.

4. Take into consideration the uncertainty of characterization and volumes of waste streams primarily coming from WTP and going to ETF, ensure a robust and conservative waste acceptance criterion for ETF, and ensure that these criteria are reflected in the Permit conditions.

242-A Evaporator Comments and Recommendations:

1. Include a Permit condition to ensure the 242-A Evaporator has necessary upgrades, including replacing equipment, to safely operate the additional campaigns to process WTP waste streams.

2. Include a Permit condition to address accumulation of organics in the facility's tanks.

3. Identify requirements for limiting volatile organics within the waste acceptance criteria condition.

4. Ensure Permit conditions address the dangers of ammonia, including flammability and corrosivity.

325 Hazardous Waste Treatment Units Comments and Recommendations:

1. Include a Permit condition to ensure the 325 Facility has the necessary upgrades, including maintenance and replacement of equipment for safe operations (examples: plumbing, sumps, and associated piping to waste receiving tanks).

2. Include a Permit conditions to ensure the 325 Hazardous Waste Treatment Units identification of all waste codes for all waste processed in the facility.

Central Waste Complex Comments and Recommendations:

1. Modify the Permit condition (III.6.0.4.b) to reflect compliance with Building and Structural Specialty and Fire Code requirements and Secondary Containment volumes.

2. Include necessary Permit conditions to bring the Central Waste Complex into compliance (e.g., RCRA requires dams, berms, and containment be present that equal the content of the drums)

3. Revise/include Permit conditions requiring all waste stored at the CWC to be cataloged and properly labeled.

4. Revise/include Permit conditions requiring all wastes properly characterized to ensure that explosive or flammable chemicals are properly stored.

5. Include a Permit condition requiring all wastes to be tested, characterized and properly designated and removed for treatment on an accelerated schedule which is incorporated into the Permit's compliance schedule.

6. Include a Permit condition requiring all waste stored outdoors to be removed from the facility and properly stored or shipped offsite.

7. Include a Permit condition limiting acceptance of any new waste until proper characterization/designation/and needed treatment of the existing waste has been done.

Waste Receiving and Processing Facility (WRAP) Comments and Recommendations:

1. Modify the WRAP Permit condition (III.7.0.4.b) to reflect compliance with Building and Structural Specialty and Fire Code requirements and Secondary Containment volumes.

2. Include a Permit condition requiring characterization of all waste streams processed in the WRAP facility.

3. Include/revise a Permit condition to include the function of the WRAP facility is to package TRU waste for shipment to WIPP, and that mixed waste can have TRU components and be identified as mixed TRU waste or MTW.

4. Include a Permit condition or revise the WAP to include a detailed list/document of the criteria and the methodology for determination of the presence of liquids in the wastes.

5. Include/revise a Permit condition to include criteria on how to obtain representative samples from a drum containing multiple containers of waste which lack identified/associated process information.

6. Include/revise a Permit condition for the following concerns or revise the Sections B.1.1.1; B.1.1.1.2 ; B.1.1.1.2.2 ; B.2.1.3.1 ; B.2.1.1.3.1; B.2.1.3.3; B.7.3 (of the WRAP Facility Waste Analysis Plan:

    a. Clarify the range of dangerous chemicals and the various methods of chemical screening.

    b. Clarify how people on the evaluations committee determine what to sample and which sample methods to use.

c. Require the Permittee to clearly identify the range of dangerous chemicals and the various waste streams within the packages to be in compliance with the Dangerous Waste Regulations.

d. Clearly identify who has the responsibility to designate the waste to certify that it meets LDR standards.

e. Clarify that the "10% rule" should only be applied to where it is absolutely known that the material inside the drums is exactly the same.

f. Clarify the representativeness of the drum sampling from a package on the top of a drum and the packages located near the bottom of the drum.

g. Include treatment of peroxides, oxidizers, sulfides, cyanides, and halogenated organic carbon in addition to grouting.

222-S (Laboratory) Dangerous & Mixed Waste Comments and Recommendations:

1. Include a Permit condition to ensure the 222-S identification of all waste codes for all waste processed in the facility.

2. Include a Permit condition to ensure 222-S facility has the necessary upgrades, including maintenance and replacement of equipment for safe operations (examples: plumbing, sumps, and associated piping to waste receiving tanks).

T-Plant Complex Comment and Recommendation:

Modify the Permit condition (III.9.0.4.d) to reflect compliance with Building and Structural Specialty and Fire Code requirements and Secondary Containment volumes.

Waste Treatment and Immobilization Plant Unit Comments and Recommendations:

1. Revise/include a Permit condition that defines the criteria and standards to be used to identify and evaluate chemical and radiological constituent hazards that could occur at the WTP facility. This could include writing a Permit condition requiring hazard analysis to be performed early in the process, rather than just prior to receipt of waste, to support necessary design change or mitigation.

2. Revise/include a Permit condition requiring response planning for criticality and natural and man-made phenomenon (e.g. Cascadia seismic events, dam failure, cyber attack disabling electrical systems) that addresses both the direct and indirect effects from major events.

3. Revise/include a Permit condition requiring contingency planning for suffocating CO2 release events from the cooling systems. Ecology should revise/include a Permit

condition with specific actions to ensure that CO2 fire extinguishers are not used on or near high voltage equipment, or in areas that are or may become "confined spaces".

4. Revise/include a Permit condition requiring contingency planning for response to the damages and difficulties associated with volcanic events (e.g., highly abrasive ash infiltration into operating spaces resulting secondarily in failure of exit safety equipment to perform).

5. Revise the Emergency Management Plan to reflect and ensure compliance with new WTP conditions as described in the above advice points for the WTP facility. Ecology should revise Permit conditions requiring compliance with Waste Acceptance Criteria and Section 1 Introduction and Addendum B1 to more accurately reflect the NRC's provisional position on reclassification of ILAW waste as incidental to reprocessing. The NRC has yet to make a determination for Hanford.

6. Do not defer or delegate authority for RCRA actions to external processes and documents and to instead detail standards, requirements, methods and frequencies as permit conditions. Append all referenced versions of documents to the permit with active hyperlinks to the referenced section(s). Some referenced documents appear to be missing from the permit. Examples: Addendum B-1.

a. Waste Treatment Plant Quality Assurance Project Plan for the Waste Analysis Plan, Rev. 0.;

b. 24590-WTP-RPT-MGT-04-001, Rev. 0,Regulatory Data Quality Objectives Optimization Report; and

c. RPT-W375LV-EN00002, as amended, Approach to Immobilized Hanford Tank Waste Land Disposal Restrictions Compliance

7. Update Permit conditions III.10.C.2.n.i through .iv to reflect current dates/future dates.

8. Revise/include a Permit condition to ensure that Tank Wastes are immobilized in a durable waste form with performance at least equivalent to glass for the entire waste form, and to ensure proper characterization of tank wastes. The Board supports vitrification of wastes and opposes alternate waste forms unless their performances can be shown to be at least "as good as glass" (including secondary waste streams - see HAB Advice #258).

9. Revise/include a Permit condition to ensure the facility's design is based on sound engineering principles and according to applicable regulations. Include a Permit condition to ensure all necessary testing or studies are performed well in advance of when data is needed for design and construction (see HAB Advice #258).

10. Revise/include a Permit condition to ensure WTP supporting facilities operate as intended throughout the operational life of the WTP facility while also performing their respective operations of support for other Hanford facilities (e.g. 242-A Evaporator).

11. Include/revise a Permit(s) condition(s) to require that all engineering drawings included in the permit be stamped by a registered professional engineer [WAC173-303-640].

12. Include/revise a Permit(s) condition(s)to require the Permittee(DOE) to demonstrate that the plant design is technically functional, especially in the case of technical issues identified by the Defense Nuclear Facility Safety Board and/or by Ecology staff related to:

a. Mixing (especially for non-Newtonian fluids)

b. Particle settling (especially for criticality control, but also for heavy metals – lead, chromium, nickel …)

c. Hydrogen gas generation and deflagration

d. Erosion and corrosion.

13. Include/revise a Permit(s) condition(s) to ensure that plant systems and all facility vessel designs contain provisions to accomplish clean closure in accordance with WAC 173-303-610 & WAC 173-303-640.

14. Revise/include a Permit(s) condition(s) to ensure the emergency plans include an assessment of various modes of systems failures and their impacts on the emergency plans (e.g. common, cascade, sequential, parallel and other modes; age related failures through erosion, wear, corrosion, etc.).

15. Include/revise a Permit(s) condition(s) to require equivalent capabilities for each "train of equipment (e.g. Melter off-gas treatment system)" whenever/where ever multiple parallel trains exist in the facilities.

16. The Board advises Ecology to include a Permit(s) condition(s) to ensure that effluent pollutant levels in stack exhaust meet human health exposure criteria at the point of emission.

17. The Board advises Ecology to include a permit(s) condition(s) to ensure that effluent pollutant levels in stack exhaust (emission points) meet NESHAPs and RCRA emission criteria; and further require identification and remediation of instance where risks to human health exposure fall outside the protective standards intended by NESHAPs and RCRA emissions criteria.

Integrated Disposal Facility Comments and Recommendations:

1. Modify the waste acceptance criteria condition or include a Permit condition which ensures IDF only accepts wastes that have been vitrified or whose entire packages have performance equivalent to vitrification.

2. Delete all references to bulk vitrification in the IDF Permit.

3. Base the Risk Budget Tool evaluation on the sampling results of releases from the bottom of the trench, and not take credit for the soil column.

4. Include a Permit condition requiring submittal of a set of testing protocols to verify how waste will release from the waste packages in IDF.

5. Revise/include a Permit condition to ensure the process for creating the Risk Budget Tool & that this process considers the following parameters; the concentration of contaminants in the waste stream, the waste form leachability, whether or not the releases from that material will exceed groundwater or drinking water protection standards.

6. Include impacts from nearby waste sites/ trenches to bound cumulative impacts to groundwater in the model used in the Risk Budget Tool.

Double Shell Tank System and 204-AR Comments and Recommendations:

1. Revise/include a Permit condition for sampling the DSTs to ensure tank wastes maintain their waste acceptance criteria chemistry.

2. Revise/include a Permit condition to address leaks from all waste transfer lines (including HIHT), diversion boxes, and other system components (including all ancillary equipment).

3. Revise/include a Permit condition to ensure that all waste which has escaped into the environment (including the Vadose Zone and outside the boundaries of Tank Farms) is identified, characterized such that the vertical and lateral extent of the contamination is identified, and that such releases are remediated in accordance with the Dangerous Waste Regulations under WAC 173-303-645.

4. Ecology should use its authority under the Resource Conservation Recovery Act (RCRA) to better regulate and protect Hanford workers from exposure to chemical vapors at Hanford, specifically with reference to those chemical vapors emanating from the high-level nuclear waste stored in Hanford's underground radioactive waste tanks.

Waste Encapsulating Storage Facility (WESF) Comments and Recommendations:

1. Bring WESF into RCRA compliance by moving the capsules into dry cask storage and close the facility.

2. Include a Permit condition bounding the acceptance of additional waste at WESF, due to the fact that WESF is currently at capacity and cannot handle additional waste volume.

400 Area Waste Management Unit Comments and Recommendations:

1. Draft a Permit condition preventing acceptance of offsite waste at the 400 Area using its authority under WAC 173-303-815(2).

2. Draft a Permit condition preventing acceptance of incompatible waste by their waste acceptance criteria.

3. Draft a Permit condition with dates for the removal of all sodium-bearing materials and subsequent clean closure.

4. Review and revise the Part A form to limit storage capacity to the currently stored volumes of sodium-bearing mixed waste currently stored in the facility.

Low-Level Burial Grounds, Used Trenches, "Green Islands" Closure Unit Group 26 (CUG-26) Comments and Recommendations:

Hanford Challenge recognizes that because much of the waste disposal into Hanford's burial grounds occurred prior to the passage of RCRA (as well as prior to the delegation of RCRA authority to the State of Washington), Ecology's authority over these burial grounds is somewhat limited. The Hanford Advisory Board has advised Ecology to seek direct delegation of authority from EPA for state application of RCRA for the period of 1976 to 1987. While we are supportive of that request, we are even more concerned that sufficient characterization and investigation occurs throughout the entire burial grounds to fully understand where the mobile and long-lived contaminants reside, so that informed decisions can be made about the level of risk posed by these wastes. Acceptable methods to mitigate that risk can then be determined. Hanford Challenge recommends that Ecology work with EPA to ensure that is the case.

Low-Level Burial Grounds Trenches 31 & 34 Comments and Recommendations:

1. Revise the Part A form to include all trenches as subject to Dangerous Waste Regulations until such time that characterization (including actively digging up waste to be able to conduct sampling) demonstrates it is not RCRA waste.

2. Include permit conditions for the management of retrievably stored waste.

3. Include/revise a Permit condition requiring monitoring of the entire 40 miles of unlined trenches. The monitoring system should include contaminants of concern associated with nearby operable units and the associated groundwater unit(s).

4. Revise/delete text in the Permit conditions supporting 'in-trench treatment or placement of liquids within landfill'.

5. Revise/delete text in Permit conditions supporting placement of [storing] containers in a landfill.

6. Include a Permit condition requiring a new Container Storage facility for LLBG wastes subject to WAC 1783-303-630 regulations.

7. Inform the Waste Analysis Plan & Sampling and Analysis Plan and criteria for waste acceptance at the LLBG by the results of the Risk Budget Tool.

8. Utilize Ecology's omnibus authority under WAC 173-303-815 and revise/include a permit condition requiring on-going groundwater well evaluation and deepening of wells as the groundwater level drops.

Low-Level Burial Grounds Trenches 94 Comments and Recommendations:

1. Include a Permit condition identifying the groundwater protection standards that satisfy WAC 173-303-645(4), (5), (6), (7), (8), and (9).

2. Utilize its Omnibus Authority under WAC 173-303-815 and include a Permit condition requiring characterization of the vadose zone beneath the trench.

3. Revise the Inspection requirements to ensure that the Permittee can demonstrate its ability to maintain oversight of the trenches.

4. Revise/include a Permit condition to ensure that lead and mercury are included in the analyte list of Contaminants of Concern for the groundwater monitoring plan.

5. Revise/include a Permit condition requiring at a minimum, installation of four additional groundwater monitoring wells (two upstream and two downstream).

6. Utilize Ecology's Omnibus Authority under WAC 173-303-815 and revise/include a permit condition requiring on-going groundwater well evaluation and deepening of wells as the groundwater level drops.

Part IV: Corrective Action Units

324 Building Comments and Recommendations

1. Due to the B-Cell leak which requires extensive cleanup, this unit should be included in the Permit at least as a Part IV Corrective Action Unit. Use Omnibus Authority WAC 173-303-815(2). New information is a basis.

    - According to DOE, the 324 facility will be reopened to remediate the spill under B-cell, and as part of the oversight for operating this facility, which presumably will generate hazardous waste as well as radioactive waste, it should be included in the RCRA permit. Attached below is the list of COCs for the B-cell sampling and analysis plan. In addition to the radionuclides, it contains the metals barium, cadmium, chromium and lead, as well as pH. Ecology's main objection may be that the 324 building waste site contains only radionuclides, thus it need not be included in the RCRA. However, the list of COCs says otherwise.

CA-1 Waste Management and CA-2 Groundwater Operable Unit Comments and Recommendations:

1. It is inappropriate of Ecology to apply II.Y corrective action conditions to Closure and/or Post Closure Units in lieu of meeting the groundwater protection requirements of WAC 173-303-610.

2. It is inappropriate to prospectively accept CERCLA work via the II.Y conditions as satisfying the Dangerous Waste WAC 173-303-645 corrective action permit requirements.

3. Include a Permit(s) condition(s) requiring submittal to Ecology of RCRA groundwater monitoring requirements from all CERCLA documents for incorporation into the units-specific Addenda housing the Groundwater Monitoring Plans. Ecology should require a crosswalk-table which identifies RCRA requirements in the CERCLA documents which are cited in the RCRA Permit and subject to WAC 173-303-830/840 process.

4. Until such time that Ecology has accepted the modeled results from the STOMP-1D code according to criteria in the Dangerous Waste Regulations, Ecology should require and incorporate unit-specific groundwater monitoring into the Permit(s) in compliance with WAC 173-303-610(2)(b)(i) requirements.

5. The statement that "Ecology, EPA, and DOE agree that past-practice authority may provide the most efficient means for addressing mixed waste groundwater contamination plumes originating from a combination of TSD and past-practice units" does not comply with the Dangerous Wastes regulations [WAC 173-303]; does not provide for RCRA groundwater monitoring, nor does it provide for public involvement in important groundwater decisions.

6. Include/revise a Permit(s) condition(s) to ensure the Permittee complies with WAC 173-303 requirements to characterize the vertical and horizontal extent of contamination.

7. While the Permit requires the Permittee to supply "a sufficient number of groundwater monitoring wells, and (to) add new wells as necessary to catch contaminants movement in the groundwater and identify compliance status," the number of usable wells on the Central Plateau is rapidly decreasing due to the dropping Water Table. Ecology should revise/include a Permit(s) condition that requires a sufficient number of monitoring wells be sited according to subsurface studies that identify suitable thick intervals of wetted aquifer to support groundwater monitoring into the future.

8. Revise/include a Permit(s) condition(s) in the Groundwater Monitoring Plan (s) to require identification of the number and location (and criteria for determining these) of groundwater and leaked waste monitoring wells.

9. The vadose zone is not present in the Permit(s) groundwater monitoring plans. Ecology should include Permit(s) conditions providing for Ecology's oversight of vadose zone characterization and remediation activities as an important segment of the overall Hanford clean-up schema.

10. Utilize its Omnibus Authority under WAC 173-303-815 and include a Permit(s) condition(s) requiring characterization (i.e., physical sampling) and monitoring of the vadose zone beneath the Tank Farms and other mixed waste sites.

11. Ecology is cautioned that the Central Plateau Water Table level decline is making "wet" monitoring wells much harder to find or sustain. Since the Permit states that "Wells that are no longer sampled due to water table decline (i.e., "dry groundwater monitoring wells"), and for which there is no future use, must be decommissioned," Ecology should review/ include a Permit(s) condition(s) requiring evaluation of the utility of using these dry groundwater monitoring wells for use in sampling, using pore water geochemical sampling, radiological or geophysical methods prior to decommissioning.

12. Include a Permit condition to ensure Ecology authority and oversight of all pump & treat systems including how groundwater monitoring wells are installed (WAC 173-160); utilized; and managed.

Groundwater Operable Units Comments and Recommendations:

1. Include a Permit condition for the WTP requiring planning for a groundwater monitoring system to insure there is proper placement of monitoring wells with respect to plant locations more susceptible to leakage or that hold more risk according to materials handled. Ecology may want to designate specific monitoring well locations to ensure sufficient coverage within the WTP complex.

2. Include a Permit condition(s) that ensures full characterization of both the vertical and horizontal extent of groundwater contamination.

3. The Permit requires "that the Permittee supply a sufficient number of groundwater monitoring wells, and (to) add new wells as necessary to catch contaminants movement in the groundwater and identify compliance status," the number of usable wells on the Central Plateau is rapidly decreasing due to the falling water table.

    - Include a Permit condition to require additional wells be located with respect to the thickest portions of the remaining wetted section of the aquifer that will also fulfill the monitoring requirement for each waste site.

4. The Permit states that "Wells that are no longer sampled due to water table decline (i.e., "dry groundwater monitoring wells"), and for which there is no future use, *must be decommissioned.*" Given the falling water table in the Central Plateau is making "wet" monitoring wells harder to find or sustain.

    - Ecology should include a Permit condition requiring evaluation of using now-dry groundwater monitoring wells for alternative sampling, using pore water geochemical sampling, radiological or geophysical methods in lieu of groundwater sampling.

5. Hanford Challenge is also concerned that water has collected in some "dry wells" in the tank farms and that they are not currently usable for gamma logging.

    - Hanford Challenge recommends that Ecology write a Permit condition to require pumping water or waste out of "dry wells" to allow their continued use.

    - Ecology should write a Permit condition to require the routine annual (or more frequent) gamma logging of the dry wells to depths greater than 55 feet (past the first wetted zone in the soil, and to the full well depth in most cases), to improve early leak detection of Hanford tanks. Some dry wells would need to be extended to at least 60 feet for this purpose.

6. Ecology should take additional measures with respect to vadose zone contribution of contaminants to the groundwater – now and into the future.

    Hanford Challenge Recommends that Ecology:

    - Include Permit conditions providing for Ecology's oversight of vadose zone characterization and remediation activities as an important segment of the overall Hanford clean-up.

    - Include a Permit condition that would require characterization (i.e., physical sampling) and monitoring of the vadose zone beneath the Tank Farms and other important mixed waste sites to fully understand the current conditions and the fate and transport of contaminants in the vadose zone and its potential impact to groundwater in the future.

    - Include a Permit condition that requires the use of a Risk Budget Tool to model the cumulative effects of multiple contaminants to groundwater. The condition should require submittal of the parameters that were used in the Risk Budget Tool and parameter selection should be subject to the Permit modification process.

Part V: Closure Units

1301-N Liquid Waste Disposal Facility, 216-A-29 Ditch, 216-A-36B Crib, 216-A-37-1 Crib, 216-S-10 Pond and Ditch, 216-B-63 Trench, 216-B-3 Pond Comments and Recommendations:

1. Utilize the Closure Plans submitted in the Part B application and to write appropriate Closure Permit conditions to rectify any non-compliance with unit specific closure requirements under WAC 173-303.

2. Ensure the approved closure plan is consistent with unit-specific Dangerous Waste Regulations-WAC 173-303 (ex: Surface Impoundment regulations).

3. Include approved Closure Plans and/or Permit Conditions within the Permit(s) to ensure compliance with WAC 173-303-610 and unit specific closure requirements. Ecology should not presumptively approve plans that do not yet exist. There is a lack of requirements for submittal of closure plans in the new RCRA Permit(s). Reference to closure actions under non-existent CERCLA document violates DW closure regulation requirements to have these details in an approved Closure Plan. Required by WAC 173-303-610(3).

4. Include Ecology approved and Dangerous Waste WAC 173-303 compliant RCRA Groundwater Monitoring Plans as attachments to unit specific Permits within their Closure Plan Addendums.

5. All Addendums identified as "reserved" should include the WAC 173-303 required information in order to be in compliance with the regulations.

6. Require all unit-specific groundwater monitoring plans be consistent with Ecology Publication # 04-03-030, Guidelines for Preparing Quality Assurance Plans for Environmental Studies.

7. Include in each unit-specific Permit the full list of COCs as noted or identified in unit-associated draft RI/FS documents previously submitted to Ecology.

8. Require use of a methods-based approach in the unit-specific Sampling and Analysis Plans.

9. Require use of non-filtered sampling in the Sampling and Analysis. Ecology should require repairs and replacement of wells per WAC 173-160.

10. Require the unit-specific training plans are included directly within the Training Addenda.

11. Coordinate and incorporate RCRA inspection requirements for the unit-specific Permits with those for the associated CERCLA groundwater operable unit's.

12. Ensure that all unit-specific Closure Schedules are compliant with the Dangerous Waste WAC 173-303-610 requirements or 173-303-815(3)(b)

13. Review and revise Part V (closing) Permits to ensure compliance with Land Disposal Restrictions (LDRs).

14. Review and revise Part V (closing) Permits to ensure that non-existent Part II conditions are not cited (e.g.1301-N).

15. All RCRA TSDs closure performance standards must use MTCA Method B cleanup levels.

16. Permit(s) should include compliance schedules in accordance with WAC 173-303-610 closure regulations.

17. Include a Permit condition requiring submittal of all RD/RA work Plans to Ecology as subject to WAC 173-303-830/840 Permit modification process.

Single Shell Tank Unit Comments and Recommendations:

1. Revise Permit condition V.4.B.3.f (e) [refers to releases to the soils and groundwater] to include identification of specific methodology to be used in determining how releases are identified as occurring and the process for compliance with WAC 173-303-640(4) requirements.

2. Revise/include a Permit condition to address leaks from all waste transfer lines (including HIHT), diversion boxes, and other system components (including all ancillary equipment).

3. Revise/include a Permit condition to ensure that all waste which has escaped into the environment (including the Vadose Zone and outside the boundaries of Tank Farms) is identified, characterized such that the vertical and lateral extent of the contamination is identified, and that such releases are remediated in accordance with the Dangerous Waste Regulations under WAC 173-303-645.

4. Revise Permit condition V.4.B.3.f (h) [refers to tank integrity assessment]to include identification of the process for selection of the methodology/criteria for determining tank integrity citing also WAC 173-303-640(2) regulations and identify the requirements necessary to be in compliance.

5. Revise Permit condition V.4.G.2.c.i [refers to closure Performance Standards] to include all specific criteria which must be met in order meet the required "Impracticability Demonstration."

6. Revise the V.4.C Conditions [refers to SST Groundwater Monitoring] to reflect and cite WAC 173-303-645(11) [Corrective Action Program for release from regulated units] requirements.

7. Include a Permit condition requiring submittal of all TSAPs (Tank or Component Specific Sampling and Analysis Plans) subject to WAC 173-303-830/840 permit modification requirements.

8. Revise Permit condition V.4.B.3.g. (k) & (l) [refers to maps and descriptions of tanks/ancillary equipment/piping distribution] to include specific criteria which must be met in order to determine integrity status and retrieval status. [see previous comment regarding Tank Assessments]

9. The Milestone Schedule for closure of SST does not support WAC 173-303-610 or 173-340-360(4) requirements. Ecology should negotiate a more realistic Closure Compliance Schedule with DOE.

10. Include/revise a Permit(s) condition(s) requiring the construction of new double shell tanks and emptying of the tanks known or suspected of leaking as expeditiously as possible.

11. Include/revise a Permit(s) condition(s) to require a priority basis when establishing plans for emptying tanks (i.e., the "Systems Plan") and the alternatives considered shall require that the tanks be emptied in RCRA priority (i.e., First priority - known leaking tanks, second priority - suspected leaking tanks, third priority - non-compliant single shell tanks, finally all remaining tank wastes).

12. Include/revise a Permit(s) condition(s) to ensure the Permittee (DOE) complies with WAC 173-303 requirements to characterize the vertical and horizontal extent of SST sites contamination.

13. Utilize its Omnibus Authority under WAC 173-303-815 and include a Permit(s) condition(s) requiring characterization (i.e., physical sampling) and monitoring of the vadose zone beneath the SST Tank Farms and other mixed waste sites.

14. Include/revise a Permit(s) condition(s) to ensure better validating leak detection methodology and capability and to establish the criteria for what constitutes acceptable leak detection capability.

15. Include/revise a Permit(s) condition(s) requiring the pumping of water or waste out of "dry wells" and requiring annual (or more frequent) gamma logging of the dry wells to depths >55 feet past the first wetted zone in the soil, and to the full well depth in most cases, to improve early tank waste leak detection.

16. Include/revise a Permit condition(s) requiring the Permittee (DOE) to extend dry wells that do not extend to at least 60 feet and to utilize these wells to perform gamma logging and detection or leaks or extension of contaminate plumes.

18. Include a Permit(s) condition(s) requiring all changes to groundwater monitoring to be incorporated into the RCRA Permit(s) per the WAC 173-303-830/840 process.

19. Revise/include a Permit(s) condition(s) to require annual submittal of a schedule for closure of tanks to meet Milestones M-045-70 & M-62-45 requirements.

20. Utilize Ecology's Omnibus authority under WAC 173-303-815 to include a Permit(s) condition(s) to require annual submittal of a budget report which identifies necessary increases in personnel, equipment, and costs to support compliance with Milestones M-045-70 & M-62-45 requirements.

21. Revise/include a Permit(s) condition(s) to ensure closure of the SST System and compliance with Performance Standards is subject to the WAC 173-303-830/840 process.

22. Revise/include a Permit(s) condition(s) to ensure there is a re-evaluation of the Post-Closure care period after 30 years with subsequent periodic reviews [decadal] throughout the post-closure period (WAC 173-303-610(7) and WAC 173-303-610(8)). The post

closure period should be at least 10 half-lives of any isotope that is a COC (if it's plutonium that would be 240,000 years) or as long as there are potential health risks from any non-radioactive COCs.

23. Work closely with EPA Headquarters Region 10 RCRA staff to discuss what timeframes are acceptable for the State to allow for known or suspected leaking tanks to remain in that status pending development of treatment. The State should ensure they have written agreement with EPA about what is an acceptable time period to empty the known or suspected leaking tanks, and the non-compliant tanks.

24. Ecology should use its authority under the Resource Conservation Recovery Act (RCRA)1 to better regulate and protect Hanford workers from exposure to chemical vapors at Hanford, specifically with reference to those chemical vapors emanating from the high-level nuclear waste stored in Hanford's underground radioactive waste tanks.

25. Ecology should revise/include a Permit(s) condition(s) to ensure IQRPE certifications to comply with WAC 173-303-640(2) requirements and include certification of the SST leak integrity.

Single-Shell Tank System Closure Unit Group 4 (CUG-4) Comments and Recommendations:

1. Ecology should make clear in the "definitions" in the Permit that piping and ancillary equipment that formed part of the tank systems (single-shell tanks, double-shell tanks, miscellaneous tanks, vaults, pits, valve boxes, etc…) are part of the tank system as regulated under RCRA and are part of the tank closure process under RCRA.

2. Ecology should add a Permit condition requiring removal of near-surface pipelines and noting that demonstration of technical impracticability will not be possible for pipelines.

241-CX Tank System Comments and Recommendations:

1. Ecology should not refer to closure actions in non-existent CERCLA documents [e.g. 200-IS-1OU]. Dangerous Wastes closure regulations require details in an approved Closure Plan.

2. Include Permit condition(s) citing use of MTCA Method B values to meet the Performance Standards requirements.

3. Revise the cleanup of associated ancillary facilities. Partial closure of facilities is not allowed under WAC -610 or -640

Hexone Storage and Treatment Facility Comments and Recommendations:

Revise the Permit to require RTD for the Hexone Storage Tanks and all associated ancillary equipment.

Nonradioactive Dangerous Waste Landfill Comments and Recommendations:

1. WAC 173-303-650 requires details and a complete cover design to be in compliance with the Dangerous Waste regulations.

2. Include a Permit condition requiring submittal within 30days of permit issuance, of a complete cover/barrier design and attachment of this design into the RCRA Permit for NRDWL.

3. Write a Permit condition that requires DOE to identify the source of soils and materials to be used for the construction of a landfill cap.

Double-Shell Tank System & 204-AR Waste Unloading Station Operating Unit Group 12 (OUG-12) Comments and Recommendations:

1. The recent discovery of a leak in double-shell tank AY-102 raises a number of concerns that can at least be partially met by specific conditions in the RCRA Permit.

   Given the delays in getting the WTP operational, and the need for continued reliance on the soundness of the 28 double-shell tanks, the ten year frequency of inspection as spelled out in III.12.K.3.b seems completely inadequate. Hanford Challenge recommends that Ecology write Permit conditions that include a more frequent inspection schedule of the double-shell tanks. We do not believe that a ten year interval for each tank is sufficient. Hanford Challenge recommends this inspection be no less frequent than every year for each tank, and continuous monitoring for any tank showing significant issues.

   The on-going delays in the WTP, and now the possibility of leaking double-shell tank, call into question the adequacy of whether there is sufficient compliant tank space available at Hanford. We've known for some time that the limited available double-shell space would impact the ability to retrieve waste from single-shell tanks. We've been caught in the dilemma regarding new tanks for more than 20 years now, and the tanks are that much older.

2. Hanford Challenge recommends that Ecology include a Permit condition that requires that no later than December 31, 2022, either the WTP is fully operational, or else new double-shell tanks begin receiving waste. That date coincides with Consent Order requirements for the start of full WTP operations.

Waste Treatment & Immobilization Plant Operating Unit Group 10 (OUG-10) Comments and Recommendations:

1. Hanford Challenge and others are concerned that serious technical issues have yet to be resolved at the WTP, including mixing, particle setting, erosion/corrosion, and materials qualification.

   Hanford Challenge recommends that Ecology --

   - Include Permit conditions which require DOE to demonstrate that the WTP design is technically functional and materials are appropriately nuclear safety

qualified, especially in the case of technical issues identified by the Defense Nuclear Facility Safety Board and/or by Ecology staff related to:

- Mixing (especially for non-Newtonian fluids),
- Particle setting (especially for criticality control, but also for heavy metals – lead, chromium, nickel),
- Hydrogen gas generation and deflagration, and
- That all nuclear-related equipment be qualified and certified to operate in forseeable, defined accident scenarios.

- Include a Permit condition that requires that all engineering drawings included in the Permit be stamped by registered professional engineers as required under the professional standard for engineers.

- Include a Permit condition to ensure that major control elements (valves, check valves, back pressure valves, over pressure reliefs, relief detection, valve controllers and positioners) are included on process flow diagrams as well as on other engineering drawings. Many of the process flow diagrams appear to be missing essential valves and components, including both physical and control elements.

- Include Permit conditions ensuring header vent designs used in the facility prevent explosive or deflagrative events propagating through systems and leading to wide-scale system failures.

2. The Permit calls for the plant to be clean closed, however the vessel designs make no provisions to allow for this or to make it easy.

Hanford Challenge recommends that Ecology include Permit conditions, wherever possible, to require that plant systems be designed to facilitate clean closure.

3. At Hanford and at the Idaho National laboratory, prior operations of the canyon facilities resulted in emission of oxides of nitrogen at levels above human health standards. Under some weather conditions (not easily represented in standard atmospheric dispersion models), these form long regularly undulating plumes that undergo little mixing or dispersion and slowly descend until they contact the ground surface 2 to 20 miles distant from the point of release.

Hanford Challenge recommends that Ecology include Permit conditions on effluent pollutant levels from the stack exhaust that meet human health exposure criteria at the point of release.

4. By making the parallel equipment different, plant operations become more complex, training issues become large, the potential for mistakes and violations increase dramatically.

   Hanford Challenge recommends that Ecology include Permit conditions to require equivalent capabilities for each train of equipment whenever/wherever multiple parallel trains exist in a WTP facility.

5. Hanford Challenge recommends that Ecology include Permit conditions that require Independently Qualified Registered Professional Engineer evaluations for piping to include assessments of internal corrosion and erosion as well as external galvanic corrosion.

6. Hanford Challenge recommends that Ecology include a Permit condition requiring comprehensive galvanic, cathodic and other corrosion protection for buried piping, interplant connected systems, and in facilities to assure that vessels, hangers, wiring, wire trays and other components are protected from various forms of corrosion.

Waste Treatment & Immobilization Plant Operating Unit Group 10 (OUG-10) Addendum B1 Waste Treatment Plant Waste Analysis Plan

Section I Introduction, Part III, Operating Unit Group 10-B1.1, Paragraph at line 31. The Permit should not assume that all conditions will be met (removing key radionuclide to the maximum degree practicable, meeting Class C waste limits and conditions, etc…) to allow reclassification of immobilized low-activity waste as incidental, which is needed for disposal to occur at Hanford. If the conditions are not met, then disposal at Hanford would not be allowed.

Waste Treatment & Immobilization Plant Operating Unit Group 10 (OUG-10) Addendum F1 Emergency Response Plan

Hanford Challenge recommends that Ecology not defer emergency plans and procedures to DOE planning documents. These need to undergo review and approval with public comment comparable to and in accordance with the RCRA permit.

- Part III F1, Emergency Response - Section F1 - F5.4, F6.1.9 and F7.2.7 Criticality – This section inaccurately asserts that criticality events are not credible at the WTP. Based on plutonium particles and mixing issues, these are now known to be credible events. (Inaccurate assertions like "Analyses have shown that there is no credible criticality event that can be postulated to occur at the WTP (BNI 2001b)" need to be removed.)

- The emergency plan should specifically detail expected actions/conditions following a Cascadia earthquake that results in wide-spread destruction across the region and which may disrupt power, fuel, roads, shipping and other resources for prolonged periods.

- As evidenced by the 1980 eruption of Mt. St. Helens, the damages and difficulties associated with volcanic events go far beyond those identified in F6.2.2 Volcanic Eruption/Ash fall. Potential impacts include highly abrasive ash infiltration into operating spaces; equipment failures from polishing; and added entry controls to minimize ash entry resulting secondarily in failure of exit safety equipment to perform (exit doors being taped shut so securely as to be unusable in an emergency).

- The emergency plans should include an assessment of various modes of failures and their impacts on the emergency plans (common, cascade, sequential, parallel and other modes; age related failures through erosion, wear, corrosion, etc…)

- The Emergency Plan does not reference, postulate or plan for suffocating CO2 release events from the cooling systems.

- Where CO2 is used or may be expected to migrate there should be requirements for continuous real-time monitors and alarms.

- Section 9.2 should include specific actions to ensure that CO2 fire extinguishers are not used on or near high voltage equipment, nor in areas that are or may become "confined spaces."

PUREX Closure Unit Group 25 (CUG-25) Comments and Recommendations:

1. The PUREX tunnels are detailed in Hanford reports as mixed-waste storage units. Hanford Challenge recommends that Ecology include Permit conditions that require the characterization and treatment of mixed- wastes in the tunnels and their proper treatment and disposal in licensed, lined, compliant disposal facilities.

   Hanford Challenge Recommends that Ecology:

   - Write Permit conditions that requires secondary containment and leak detection and monitoring.

   - Write Permit conditions for characterization of the unidentified materials in the tunnels and their volumes.

   - Remove, treat, and dispose the materials in the PUREX tunnels as appropriate. Ecology should reconsider the reliance on water transport and electrical systems over a long period of time to maintain protections such as water doors.

   - Clean close the PUREX Tunnels.

   - Expand the contaminant of concern list to include lead.

2. DOE used massive quantities of lead at Hanford for shielding. This lead poses a long term threat to the environment.

Hanford Challenge recommends that Ecology:

- Regulate lead used in shielding under RCRA.
- Include Permit conditions for the treatment of this lead in accordance with land disposal requirements and restrictions.

Low-Level Burial Ground Closing Units (Green Islands):

1. Include Ecology approved RCRA groundwater monitoring plans as attachments to unit specific Permits within their closure plan addendums.

2. Include a Permit condition requiring characterization of all areas within the 1997 Part A boundary lines. (HAB Advice# 226) The assumption should be that it is all mixed waste until it is proven otherwise.

Integrated Disposal Facility Operating Unit Group 11 (OUG-11)

Hanford Challenge recommends that all references to disposal of waste from the Demonstration Bulk Vitrification System into the Integrated Disposal Facility be deleted from the Permit.

Waste Encapsulating and Storage Facility (WESF) Operating Unit Group 14 (OUG-14)

1. Recent analyses suggests that the WESF storage pool concrete may have become embrittled due to long-term exposure from high gamma radiation.

   Hanford Challenge recommends that Ecology include specific and detailed Permit conditions requiring annual assessment of the soundness of this facility to continue on-going storage of the cesium and strontium capsules or to replace it with either a compliant facility or compliant dry cask storage.

2. As the radiation damage to concrete was not anticipated at WESF and not included in the design basis for the facility, it seems likely that this is a generic concern.

   Hanford Challenge recommends that Ecology include Permit conditions for evaluation of all other facilities with high radiation dose and/or high temperature that may impact concrete structural capability to evaluate the current condition of these facilities within two years, and to assess what jeopardy there may be to the facilities in the future (specifically including single shell tanks, double shell tanks, and the canister storage building).

Various Sites in the River Corridor (110 and 300 Areas)

1. Hanford Challenge recommends rewriting/updating several sections of material for units in the river corridor. Much of the draft text is obsolete – apparently copied from the old Permit – and has repeated presentations of 1990s-era monitoring data, reference to 2000 actions in future tense, citation of contractors and their documents that have been long-

since replaced, and similar examples. At one level, we can understand inclusion of old plans for post-closure units since those were the plans describing post-closure activities (and might not have changed) and under which post-closure decisions continue to be made, although an explanation would be useful. However, inclusion in the plan of only old (pre-2000) monitoring data for post-closure units eliminates any chance for the data to provide insight of effectiveness of the implemented remedies. Data for these units should be updated or dropped. For closure units, lack of contemporary information (new wells, new monitoring data, newer models and simulation results) seriously compromises the information base upon which decisions are based. This shortcoming might be more perception than reality, since planning under CERCLA is presumably using all available data for these decision units, but the lack of contemporary information is not reassuring.

River corridor closure units that include obsolete language and data in the plan include:

- 1301-N - Addendum D (groundwater), Addendum H (Closure Activities)
- 1324-N – Addendum D (groundwater
- 1325-N - Addendum D (groundwater)
- 183-H – Addendum D (groundwater), Addendum K (Corrective Action Plan)

2. Closure decisions and oversight/monitoring for most units in the river corridor have been delegated to the CERCLA closure process for surrounding decision units. We support this approach, as these isolated RCRA units are surrounded by CERCLA sites and it is not practical to try to close these sites, or to evaluate effectiveness of remedies, in isolation.

However, at most units in the river corridor, including both post-closure and closure units for which the remedy is considered complete, there is significant residual contamination in the vadose zone and/or groundwater. The quick fact cards acknowledge continuing contamination ("Contamination will persist . . ." (1301-N); "Groundwater contamination in close proximity to the Columbia River is a concern." (300 Area process Trenches)), and while the plans call for continued monitoring of these sites, not all of the plans include a contingency for additional cleanup.

Hanford Challenge recommends that Ecology include language in the Permit to clearly assert continued authority over management of these sites, including the potential to require additional cleanup should selected remedies, whether carried out under RCRA or CERCLA, prove to be inadequate (for restoration of groundwater as an example).

3. Closure plans for some units reflect decisions based on the 1990s-era data embedded in the plans that should be viewed with considerable skepticism. For example:

- The 1301-N closure plan cites a DOE document stating that mercury will not reach groundwater for 1,000 years.

- The 1301-N closure plan cites an assertion from DOE that there is not lateral movement of metals in the vadose zone. This broad assertion is apparently based on analysis of one metal (mercury) in one borehole.

- At 1324-N/NA, it is asserted that there is no need for a cap. This conclusion is based on a claim that there is no driver for contaminant movement, because precipitation will not reach groundwater for 200 years.

- The groundwater monitoring plan for 183-H defines a local background concentration for chromium of 122 ug/L. While this might have been the concentration in plumes emanating from 100-D, it is difficult to accept this as a "background" concentration against which treatment effectiveness at the 100-F area can be meaningfully evaluated.

Hanford Challenge recommends that Ecology re-examine the sparse characterization and monitoring data, underlying assumptions and model outputs used in the old closure planning to identify contaminants of concern and to develop cleanup plans for these units, and to ensure that contemporary cleanup/monitoring plans (under CERCLA) reflect the best available information.

Part V – Closure Units

General Closure Unit Comments and Recommendations:

1. Ecology should review and revise Part V (closing) Permits to ensure compliance with Land Disposal Restrictions (LDRs).

2. Review and revise Part V (closing) Permits to ensure that non-existent Part II conditions are not cited (e.g.1301-N).

Nonradioactive Dangerous Waste Landfill Closure Unit Group 20 (CUG-20) Comments and Recommendations:

Hanford Challenge recommends Ecology include a Permit condition requiring DOE to commit to extensive monitoring of the planned evapotranspiration (ET) barrier on the site (water content and water movement, root penetration into cap material, etc.) to evaluate actual performance of an ET cap to critically assess cap performance at NRDWL/SWL (or at a different waste site should it be the first to have an ET cap actually installed at Hanford).

Part VI: Post-Closure Units

300 Area Process Trenches Comments and Recommendations:

It is inappropriate to prospectively accept CERCLA work via the II.Y conditions as satisfying the Dangerous Waste WAC 173-303-645/646 corrective action permit requirements while the remedy selected remains an unproven technology.

Hanford Challenge Recommends that Ecology include a Permit condition to ensure that natural attenuation is not "determined" by the Director of Ecology as meeting the corrective action Permit requirements of WAC 173-303-646.

183-H Solar Evaporation Basins Comments and Recommendations:

Groundwater contamination and other issues associated with the evaporation basins suggest that they have not been closed appropriately under the regulations.

Hanford Challenge Recommends that Ecology place this unit in Part V rather than Part VI and include Permit conditions to ensure compliance with WAC 173-303-610 and WAC 173-303-650.

1325-N Liquid Waste Disposal Facility:

Groundwater contamination and other issues associated with the facility suggest that they have not been closed appropriately under the regulations.

Hanford Challenge recommends that Ecology place this unit in Part V rather than Part VI and include Permit conditions to ensure compliance with WAC 173-303-610 and WAC 173-303-650.

Addendum 1

1324-N Impoundment and 1324-NA Percolation Pond Comment and Recommendations:

Groundwater contamination and other issues associated with the facility suggests that it has not been closed appropriately under the regulations.

Hanford Challenge recommends that Ecology place this unit in Part V rather than Part VI and include Permit conditions to ensure compliance with WAC 173-303-610 and WAC 173-303-650.

SEPA Determinations

Hanford Challenge Recommends that Ecology:

- Utilize the SEPA checklists submitted with the Part B Applications and make Permit conditions to mitigate known impacts.

- Withdraw its determination of non-significance regarding the current phase until it is known what all the Hanford Site mitigation plans will be.

- Review all SEPA determinations for consistency with Washington State Dangerous Waste Permit Application; Part A Forms; the Unit-specific Permits; and the SEPA submitted with the Part B application of 9-2004.

Sincerely,

Tom Carpenter, Executive Director